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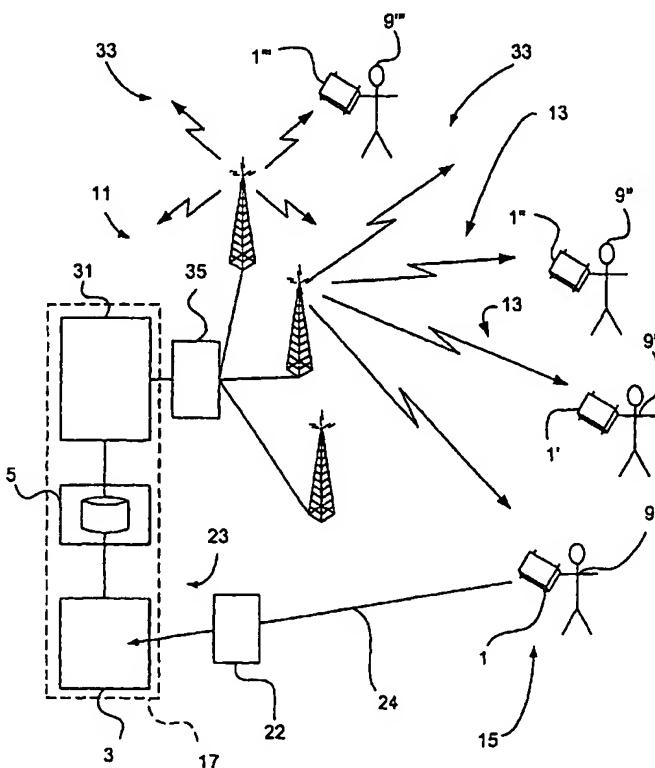
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[Continued on next page]

**(54) Title: A SYSTEM FOR COMMUNICATING MESSAGES BETWEEN CLIENTS IN A RADIO NETWORK**



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**(57) Abstract:** The invention regards a system for communicating messages between at least three clients (9-9''), each client using a portable electronic receiver terminal (1) for digital services, which portable terminal 1 comprises at least one digital broadcast receiver circuit (43) for receiving at least one digital broadcast channel (13) comprising data and which terminal (1) comprises at least one transmitter unit (19), wherein each unit being associated with an input member (39) and a display unit (37) via a processor unit (41).The system comprises at least three portable terminals (1-1'') being adopted for transmitting a message via a telecommunication channel (24) to a Chat Server Unit (3).The Chat Server Unit (3) is associated with a digital broadcast transmitter (11) by way of a database (5).The portable terminals (1-1'') each being adopted for receiving said message forwarded from said digital broadcast transmitter (11), wherein said message being embedded in said digital broadcast channel (13).



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A System for Communicating Messages between Clients  
in a Radio Network

BACKGROUND OF THE INVENTION

5 The present invention relates to a system according to the preamble of claim 1. And more particularly, to a system for exchange of "chat" messages. The invention also relates to a portable electronic receiver terminal according to the preamble of claim 7 and to a method according to the preamble of claim 10.

10 Text and/or graphic based exchange systems for messages, such as group discussions (chats, chat rooms, chat channels etc), are common on the Internet. The clients use stationary devices when receiving and transmitting their messages. Alternatively, a mobile terminal may be connected to Internet via ISP (Internet Service Provider) using suitable software provided for mobile group discussions.

15 There are also common to use text-message telecommunication systems, such as SMS (short message system), which means that a client with a mobile telephone can communicate with a group of clients using their mobile telephones.

20 Above-mentioned solutions utilise a system wherein the message from a client directed to a group of clients will in a first step be sent to a chat server. The chat server processes the message and forwards it in turn to the group of clients. That is, the clients will receive the message by turns.

25 This "in turn" broadcasting technique means that unnecessary heavy communication traffic occurs, which is costly and also means that the number of participants or clients will be limited. Furthermore, the reception in turn will cause a time dislocation, being accumulated for every new participant client.

Another arrangement, described in WO 99/63729, is provided for exchange of messages between users in a telecommunication network. The messages are sent to a Chat server that processes the messages and generates Teletext pages for television receivers.

5

Television receivers adopted for receiving Teletext are heavy and bulky. This prevents the client to be mobile.

## SUMMARY OF THE INVENTION

10

This has been solved by a system as initially defined, which system is characterized in that the system comprises at least three portable terminals being adopted for transmitting a message via a telecommunication channel to a Chat Server Unit, wherein the Chat Server Unit is associated with a digital broadcast transmitter by way 15 of a database, which database comprises a registry with client information, and the portable terminals each being adopted for receiving at the same time the message forwarded from the digital broadcast transmitter, wherein the message being embedded in the digital broadcast channel.

20 Hereby a message from one client to all clients being registered in the database will be provided in real time and sent "on the air".

Thus, the digital broadcast transmitter transmits a digital broadcast transmission, such 25 as a DAB (digital audio broadcast) transmission, DVB (digital video broadcast) transmission etc. This kind of transmission is understood by a person skilled in the art and is of a known technique. The advantage of using this kind of digital broadcast transmission is that the transmission is "on the air" all the time and everywhere where the broadcast is transmitted and that the transmission is provided available for all 30 clients "listening" to this digital broadcast channel. The inventor of this invention combines this technique with other known techniques for providing the system

according to the invention. Thus a client belonging to a "chat"-group can receive a "chat"-message via a "chat"-channel or the like from a participant client at the same time as the other clients participating in that group, a so called community group.

5 Suitably, the portable terminals receive said message at the same time. In this way the clients of a chat-group will receive the message at the same time without any time dislocation. This will make that the number of participants or clients will not be limited and no blocking or delay will occur regarding the reception of messages. Since no client has to receive the message in turn or individually, the time for broadcast will be  
10 less than prior art. Thus, the system according to the present invention is also cost-effective and ensures the mobility.

Preferably, the message is embedded in a narrow digital broadcast channel. Hereby a text data file can be used for the message.

15

Preferably, the message is embedded in a wide digital broadcast channel. Hereby picture, audio, video data etc can be used for the message.

Suitably, a first time sent message comprises the name and telephone number of the  
20 client, which name not will be on a NL (Nickname List) adopted in the database, wherein the Chat Server Unit is adopted to save the name and telephone number, and wherein the next time sent message only the telephone number will be used for providing an identification of further messages. In such a way the system according to the present invention comprises means for saving space in a data file used for  
25 messages, whereby this space may be used for content regarding messages.

This has also been solved by a portable electronic receiver terminal as initially defined, which portable terminal is characterized in that the reception is provided at the same time for all clients by means of a digital broadcast receiver circuit of the portable  
30 terminal, and wherein each terminal is provided with at least one transmitter unit

adopted for transmitting said message via a telecommunication channel. Thus, since no client has to receive the message in turn or individually, the time for broadcast will be less than prior art.

5 Suitably, the processor unit is adopted for controlling a transmission of a ID-message comprising Nickname, telephone number, chat room ID, service ID, which ID-message being sent by a client, wherein the Nickname being fed by the client by means of the input member, and said message being sent does not comprise said Nickname. Hereby space is saved in a data file used for messages.

10

Preferably, a memory unit being associated with the processor unit comprising a Chat Component for identifying the message. In such a way the message can be addressed to a Chat Room used by a plurality of clients.

15 Furthermore, this has been solved by a method as initially defined, which method is characterized by the steps of; sending the message via a telecommunication channel to a Chat Server Unit, processing the message in a database for addressing the message to a Room of participant clients, forwarding the message to at least one digital broadcast transmitter, transmitting the message via at least one digital broadcast channel, and  
20 receiving the message at the same time by the plurality of terminals, each terminal used by the participant client.

-identifying in said database (5) said message sent from a transmitting client (9) regarding only a telephone number. The transmitting client is defined as a client sending a chat message to all the other clients "listening"

25

Suitably, the method further comprises the step of;  
-identifying in the database an ID-message comprising Nickname, telephone number, chat room ID, service ID, which ID-message sent from a transmitting client regards both the telephone number and a Nickname fed into the portable terminal by the client.

30

Hereby space is saved in a data file used for messages.

## BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic block diagram illustrating a system according to the present  
5 invention,

FIG. 2 is a diagrammatic view of the system according to the present invention, and  
FIG. 3 is a diagrammatic view of a portable electronic receiver according to an  
embodiment of this invention.

## 10 DESCRIPTION OF THE INVENTION

In the following description, for purposes of explanation and not limitation, specific  
details are set forth such as network architectures, server block diagram, techniques  
etc, in order to provide an understanding of the present invention. However, it would  
15 be apparent to those skilled in the art that the present invention may be practised in  
other embodiments that depart from these specific details. In certain instances, detailed  
descriptions of well-known technique, interfaces, devices, signalling techniques are  
omitted so as to not obscure the description of the present invention with unnecessary  
details.

20

The system and the portable terminal are now to be described further with reference to  
FIG. 1-3.

25 The present invention also regards a method of sending a message, such as a chat-  
message, from a first portable terminal 1 to a plurality of other portable terminals 1'-  
1''' of the same kind as the one sending said message. The method is characterized by  
the steps of;

- sending said message via a telecommunication channel 24 to a Chat Server Unit 3,
- processing said message in a database 5 for addressing said message to a Room 7 of  
30 participant clients 9-9''',
- forwarding said message to a digital broadcast transmitter 11,

-transmitting said message via at least one digital broadcast channel 13, and  
-receiving said message at the same time by said plurality of terminals 1-1''', each terminal used by said participant client 9-9'''.

- 5    The sending of a message to a chat-group is defined with S and the receiving of the message by a plurality of clients 9'-9''' is defined with R. The schematic block diagram of FIG. 1 shows a client section 15, that is a portable electronic receiver terminal 1 for digital services, and a server section 17.
- 10   A client 9 sends via the client section 15 the message, such as an SMS-message, by means of a transmitter unit 19 comprising an antenna 21, to an ISSS (Interactive Service Support System) 23 comprising the Chat Server Unit 3 via traditional telecom network unit 22. The transmission is transmitted via a telecommunication channel 24, such as a channel of GSM, GPRS, UMTS (Universal Mobile Telecommunications System) etc.
- 15   When entering or leaving a Chat Room 7, an ID-message being transmitted to the Chat Server Unit 3 from the terminal 1 for updating an NL (Nickname List) 25. The updated NL (25) will thereafter via the broadcast transmission be transmitted to the clients

- 20   participant in that particular Chat Room 7.

The ISSS 23 receives the individual message from the client 9. Thus, all the SMS-messages are sent, by means of a specific telephone number, to the ISSS 23. If the message is a chat-message, which is decided by means of identifying a header of the message, it will be forwarded to the Chat Server Unit 3 comprising the NL (Nickname List) 25, an RL (Room List) 27 and an MR (Message Router) 29. The NL 25 identifies the message, that is a chat-message, and locates it to a room 7, for example a specific news-room, according to the RL (Room List) 27. The MR 29 forwards the message to a CMS (Content Management System) 31, which system provides material for a digital broadcast transmission 33, such as DAB (Digital Audio Broadcast), DVB (Digital Video Broadcast) etc. by means of the digital broadcast transmitter 11. The

transmission of the message to all clients 9 belonging to a room 7 is made by a network unit 35 (shown in FIG. 2). Thus, this is performed via the digital broadcast channel 13. In such a way all the participant clients 9-9''' belonging to a chat-group, will receive the message at the same time. A data packet (not shown) comprises, besides the 5 message, information data regarding the message:

- chat\_header\_id (information that this message is a chat-message)
- chat\_room\_id (information about in what room 7 of exchange of messages is performed)
- 10 service\_id (information about what service of exchange of messages is performed)
- chat\_sender\_name (information about who sent the message, may be reached from only the telephone number, thus saving space)
- chat\_message (the message)
- chat\_timestamp (information about the chronological order of incoming messages)
- 15 chat\_message\_end of entry (information about that a specific message is fully received).

The portable terminal 1 is adopted for receiving and transmitting messages. The portable terminal 1 comprises a display unit 37, an input member 39 and a processor 20 unit 41. The reception is provided at the same time for all clients 9 by means of a digital broadcast receiver circuit 43 of the portable terminal 1, and wherein each terminal 1, as been described above, is provided with at least one transmitter unit 19 adopted for transmitting the message via the telecommunication channel 24.

25 When all the clients 9 belonging to a chat-group receive the message, a Chat Component 42 of each portable terminal 1 will firstly identify whether or not it is a chat-message, thereafter it will identify to which room 7' the message shall be forwarded, and according to a Room Member List 45 put into the specific room 7' of a Room Message Table 47. A memory unit 49 (see FIG. 3) is associated with the 30 processor unit 41 defining the Chat Component 42, for identifying the message. All

parts of FIG. 1 is provided by means of the processor unit 41 and a computer (not shown) within the server section 17.

The client 9 will have the message presented on a "page" 51 shown at the display unit 37, such as a screen.

When a client 9 for the first time will send a chat-message, the name of the client 9 will be comprised in a data packet. If the name not is on the NL (Nickname List) 25, the Chat Server Unit 3 will save this name together with the telephone number. Thus, 10 next time the client 9 will send a message to the Chat Server Unit 3, only the telephone number will be used for providing an identification of the message. In this way space-saving is achieved concerning the packet of data.

Advantageously, the server section 17 is adopted to process additional data regarding 15 data-services, subscriptions etc.

The transmitter unit 19 and the processor unit 41 of the portable terminal 1 provide that the message, for example an SMS-message, can be sent to the Chat Server Unit 3. The client 9 uses a touch screen, which defines the input member 39 of the portable 20 terminal 1, for writing his message to all other participant clients 9'-9''' belonging to a chat-group. The Room Member List 45 is presented on the display unit 37, on which list all participant clients 9-9''' are presented.

The processor unit 41 of the portable terminal 1 is adopted for controlling a 25 transmission of said message for a first time being sent by the client 9, which message comprises a Nickname fed by the client 9 by means of the input member 39, and a message for a second time being sent does not comprise this Nickname.

A Transaction Component 53 provides that the message written by the client will be a 30 structured SMS-message, whereby the message contains information data for providing the identifying by the Server Section 17 comprising the Chat Server Unit 3.

As an embodiment of the present invention an ID-message comprises the name and telephone number of the client 9, which name will be updated on the NL (Nickname List) 25 adopted in the database 5, wherein the Chat Server Unit 3 is adopted to save 5 the name and telephone number in a memory (not shown). Thus, the transmitter telephone number is only used for identification of the message transmitter (that is the client 9). Thereby space is saved within the data file containing the message. This also provides that long text-files for messages can be transmitted.

10 Of course, the network unit 35 may also comprise a satellite network for transmitting the chat-message.

Of course, other sorts of messages than SMS-messages, such as MMS (pictures), audio-messages etc., are suitable implements for this invention.

15 While the invention is described in relation to preferred example embodiments, it is to be understood that this disclosure is only illustrative and exemplary of the present invention. Therefore, it is intended that the invention is limited only by the scope of the claims appended hereto.

20 The word comprising can in this application, if needed, be replaced by the word including.

## CLAIMS

1. A system for communicating messages between a plurality clients (9-9'''), each client using a portable electronic receiver terminal (1) for digital services, which
  - 5 portable terminal 1 comprises at least one digital broadcast receiver circuit (43) for receiving at least one digital broadcast channel (13) comprising data and which terminal (1) comprises at least one transmitter unit (19), wherein each unit being associated with an input member (39) and a display unit (37) via a processor unit (41),  
**characterized in that**
  - 10 -said system comprises at least three portable terminals (1-1''') being adopted for transmitting a message via a telecommunication channel (24) to a Chat Server Unit (3),
    - said Chat Server Unit (3) is associated with a digital broadcast transmitter (11) by way of a database (5), and
    - said portable terminals (1-1''') each being adopted for receiving said message
  - 15 forwarded from said digital broadcast transmitter (11), wherein said message being embedded in said digital broadcast channel (13).
- 20 2. A system according to claim 1, wherein said portable terminals (1-1''') are adopted to receive said message at the same time.
3. A system according to claim 1 or 2, wherein said database (5) comprises a registry with client information.
- 25 4. A system according to claims 1-3, wherein said message is embedded in a narrow digital broadcast channel.
5. A system according to claims 1-3, wherein said message is embedded in a wide digital broadcast channel.
- 30 6. A system according to any one of the preceding claims, wherein an ID-message comprises the name and telephone number of said client (9), which name not will be

on a NL (Nickname List) (25) adopted in said database (5), wherein said Chat Server Unit (3) is adopted to save said name and telephone number, and wherein said message also contains data of a transmitter telephone number, which will be used for providing an identification of further messages.

5

7. A portable electronic receiver terminal used by a client (9), which portable terminal (1) being adopted for receiving a message and transmitting a message and which portable terminal (1) comprises a display unit (37), an input member (39) and a processor unit (41), **characterized in that** the reception is provided at the same time for all clients (9-9'') by means of a digital broadcast receiver circuit (43) provided in said portable terminal (1), and wherein each terminal (1) is provided with at least one transmitter unit (19) adopted for transmitting said message via a telecommunication channel (24).
- 15 8. A portable terminal according to claim 7, wherein said processor unit (41) is adopted for controlling a transmission of an ID-message comprising Nickname, telephone number, chat room ID, service ID, which ID-message being sent by a client (9), wherein said Nickname being fed by the client (9) by means of said input member (39).
- 20 9. A portable terminal according to claim 7 or 8, wherein a memory unit (49) being associated with said processor unit (41) comprising a Chat Component (42) for identifying said message.
- 25 10. A method of sending a message, such as a chat-message, from a first portable terminal (1) to a plurality of other portable terminals (1'-1'') essentially of the same kind as the one sending said message, **characterized by** the steps of:
  - sending said message via a telecommunication channel (24) to a Chat Server Unit (3),
  - processing said message in a database (5) for addressing said message to a Room (7) of participant clients (9-9'''),
  - 30 -forwarding said message to at least one digital broadcast transmitter (11),
  - transmitting said message via at least one digital broadcast channel (13), and

-receiving said message at the same time by said plurality of terminals (1-1'''), each terminal used by a participant client (9-9''').

11. A method according to claim 10, wherein the method further comprises the step of:

5 -identifying in said database (5) said message sent from a transmitting client (9) regarding a telephone number.

12. A method according to claim 10, wherein the method further comprises the step of:

10 -identifying in said database (5) an ID-message comprising Nickname, telephone number, chat room ID, service ID, which ID-message sent from a transmitting client (9) regards both said telephone number and a Nickname fed into said portable terminal (1) by said client (9).

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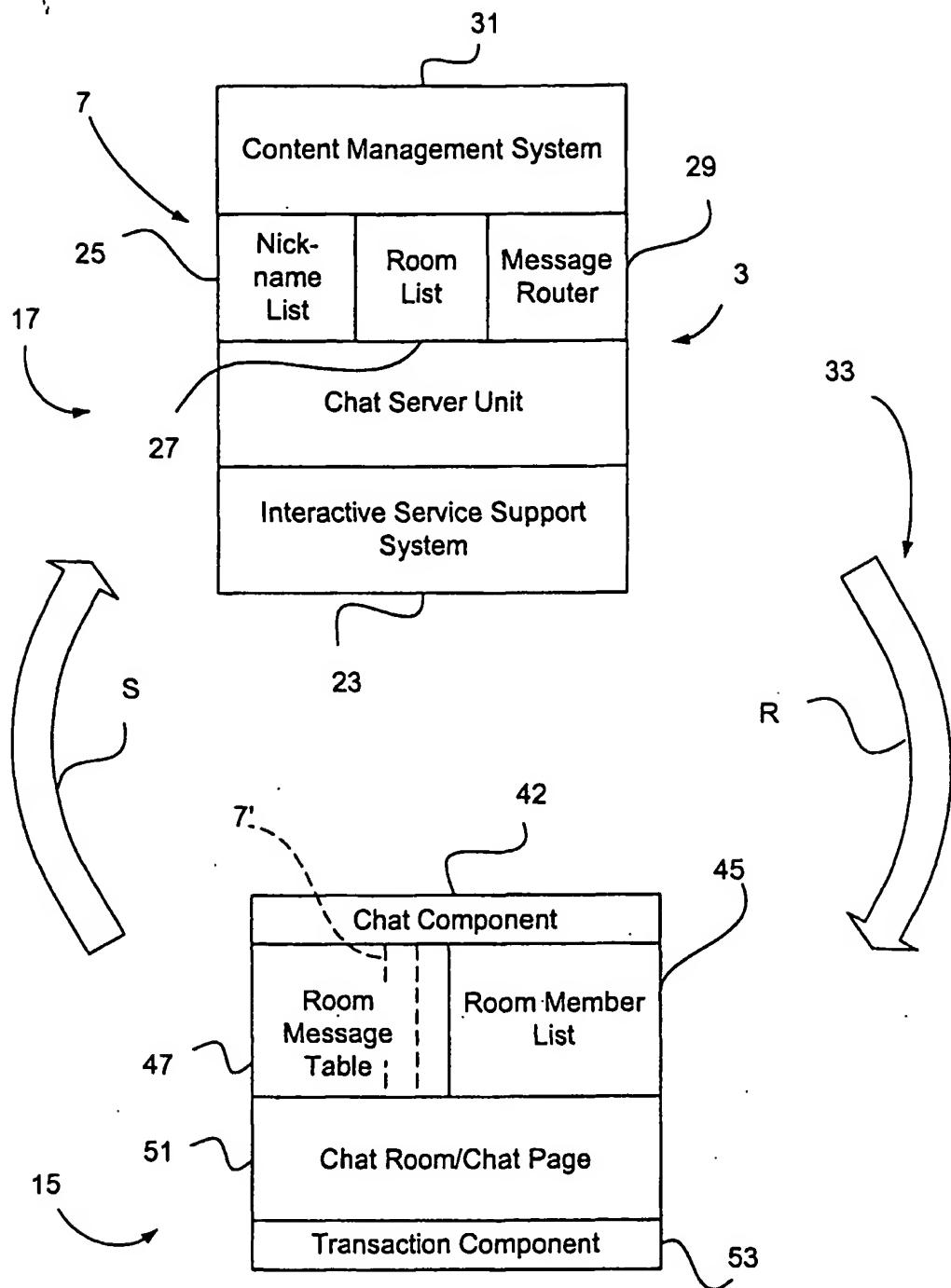


FIG. 1

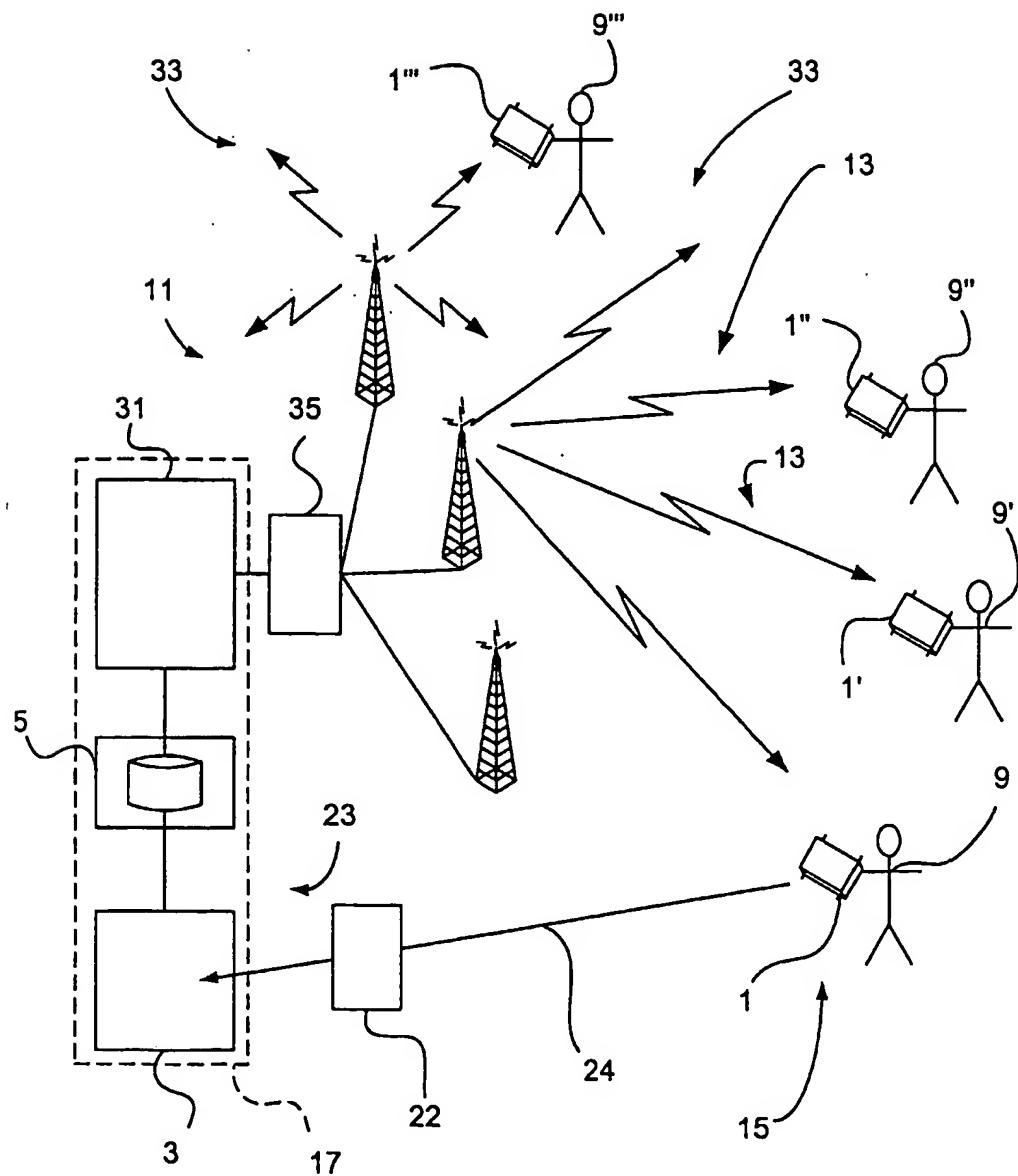


FIG. 2

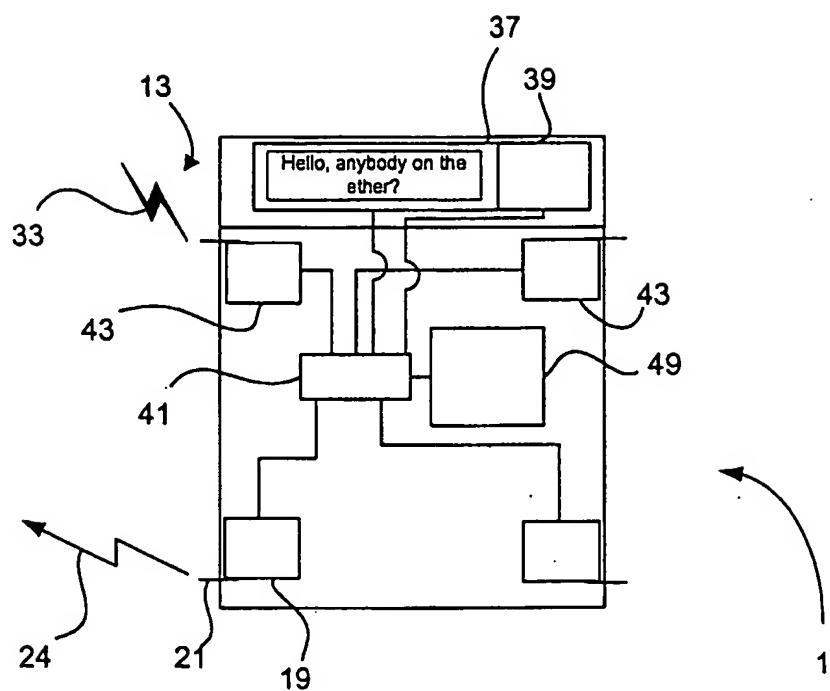


FIG. 3

## INTERNATIONAL SEARCH REPORT

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| International application No.<br>PCT/SE 02/00710 |
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## A. CLASSIFICATION OF SUBJECT MATTER

**IPC7: H04Q 7/22**

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

**IPC7: H04Q, H04L**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

**SE,DK,FI,NO classes as above**

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

| Category* | Citation of document, with indication, where appropriate, of the relevant passages  | Relevant to claim No. |
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| A         | Instant Messaging with Mobile Phones<br>to Support Awareness<br>Madoka Mitsuoka. et al<br>12 Januari 2001 (12.01.01)<br>page 223-225.<br><br>-- | 1-12                  |
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| <input type="checkbox"/> Further documents are listed in the continuation of Box C.   | <input checked="" type="checkbox"/> See patent family annex.   |
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| Date of the actual completion of the international search<br><br><u>15 August 2002</u>  | Date of mailing of the international search report<br><br><u>20 -08- 2002</u> |
| Name and mailing address of the ISA/<br>Swedish Patent Office<br>Box 5055, S-102 42 STOCKHOLM<br>Facsimile No. + 46 8 666 02 86 | Authorized officer<br><br>Thomas Tholin /js<br>Telephone No. + 46 8 782 25 00 |

**INTERNATIONAL SEARCH REPORT**  
Information on patent family members

06/07/02

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|-------------------------------|--|
| International application No. |  |
| PCT/SE 02/00710               |  |

| Patent document cited in search report | Publication date | Patent family member(s)  | Publication date   |
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| -----                                  | -----            | -----  | -----  |